GX Installation Update

Please read this material if you are interested in running multiple monitors in SunView and OpenWindows Version 2 environments.

sun microsystems

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Multiple Monitor Configuration

This document describes how to use multiple monitors while running SunView or OpenWindows Version 2. This procedure requires some knowledge of UNIX. It is assumed that you are familiar with UNIX and basic editing tools such as vi or emacs.

If you are not interested in running multiple monitors, please ignore this document.

Note – This information is subject to change with future software releases. Refer to future software release documents with respect to multiple monitor support.

For additional information, refer to the following documents:

- *OpenWindows Version 2 Installation and Start-Up Guide* (800-4899)
- SunView man pages (Enter `man sunview` in a shell.)

Device File Names

Using OpenWindows or SunView on multiple monitors necessitates familiarity with the way frame buffer devices are assigned to UNIX device file names. Multiple frame buffers used with OpenWindows and SunView require that UNIX device file names for frame buffers be supplied on the command line when either is started.

The frame buffer on which UNIX boot messages appear is known as `/dev/fb`. The `/dev/fb` usually has another device file name such as `/dev/cgsix0`, `/dev/bwtwo0`, or `/dev/cgthree0` depending on the type of the frame buffer. When a second frame buffer is added, the system decides which is `/dev/fb` based on the SBus slot number of each frame buffer and an EEPROM variable known as `sbus-probe-list`. The `/dev/fb` is the frame buffer in the first SBus slot defined in the `sbus-probe-list`.

If a second GX is added to the system that already has a GX, the `sbus-probe-list` also determines which GX is `/dev/cgsix0` and which one is `/dev/cgsix1`. In this case, `/dev/cgsix0` is the first GX found in the `sbus-probe-list` slot order. Refer to Appendix B of the GX *Installation Guide* that describes the `sbus-probe-list` variable in more detail.

Example: Assume that the `sbus-probe-list` on a SPARCstation 2 has the default value of 0123 and SBus slots 2 and 3 contain GX cards. The GX in slot 2 will be known as `/dev/fb` and `/dev/cgsix0`; the GX in slot 3 will be known as `/dev/cgsix1`.

The command line examples shown in this document use possible device file names to refer to frame buffers. Remember to substitute the proper device file name as appropriate for your system.

Running OpenWindows 2 with Multiple Monitors

Before you start multiple monitors, you need to put instructions in your `.xinitrc` file to start extra copies of the `olwm` window manager, one for each monitor.

To run multiple monitors, take the following steps:

1. Edit the `.xinitrc` file under the your home directory.

```
example% vi ~/.xinitrc
```

Note – ~ indicates user's home directory.

2. **Edit these lines of your `.xinitrc` file if you wish to use two monitors:**

```
replace these lines:

eval `svenv -env`                    # Sunview binary compatibility
olwm -3 &                            # OpenLook Window Manager

with these lines:

eval `svenv -display :0.0  -env`  # SunView binary compatibility
olwm -display :0.0 -3 &           # OpenLook Window Manager
eval `svenv -display :0.1 -env`   # SunView binary compatibility
olwm -display :0.1 -3 &           # OpenLook Window Manager
```

3. **Save the changes and exit.**

4. **Start the system using the `-dev` command-line option to `openwin` to specify the frame buffers for your monitors. For example:**

```
example% openwin -dev /dev/fb -dev /dev/cgsix1
```

Note – The order of the devices is important. The first device corresponds to the left screen. The second device corresponds to the right screen. The names of your devices (e.g., `/dev/cgsix1`) may differ. Remember to use the device file name that is appropriate for your system.

If you are running multiple screens, you should create a `.openwin-init` file in the home directory to specify on which screen each tool is to be displayed. For example, you might put this into the `.openwin-init` file to specify a shelltool on each screen:

```
export DISPLAY
DISPLAY=:0.0
shelltool -Wp 0 177 -Ws 594 692 -WP 56 9 +Wi &
DISPLAY=:0.1
shelltool -Wp 544 216 -Ws 593 461 -WP 165 7 +Wi &
```

Running the OpenWindows and SunView Environments

If you have a system with two frame buffers, you can run the OpenWindows environment on one frame buffer and the SunView environment on the other. Note that the names of the XView and SunView versions of the DeskSet tools you will be running are the same. You must make sure your path is set up correctly to run the SunView versions of the program on the SunView screen and the XView versions of the programs on the OpenWindows screen. The SunView programs are located in `/usr/bin/`; that path must appear first in your path to run the SunView tools. The XView programs are located in `$OPENWINHOME/bin/xview`; that path must appear first in your path to run the XView tools. (The `openwin` command automatically sets up your path when you start the system.)

Note – Steps 1 and 2 below are needed only if OpenWindows is invoked first.

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1. **The OpenWindows and SunView environments use different keyboard encodings. Before you try to run the OpenWindows and SunView environments at the same time, you should add an item to your SunView root menu so that you can reset the keyboard encoding, if you need to, using the `kbd_mode` command. If the `.rootmenu` file is owned by the user, the file should be located under the user's home directory. If the `.rootmenu` is the default file, please edit the `/usr/lib/.rootmenu` file. Add the following line to your `.rootmenu` file:**

```
"Reset Keyboard"    $OPENWINHOME/bin/kbd_mode -e
```

Now even if you cannot enter characters properly when you start up your SunView environment, you will be able to reset the keyboard through the root menu.

2. Save the file and exit.
3. To start the OpenWindows environment on one frame buffer, execute the `openwin` command and specify the chosen frame buffer with the *-dev* option. For example:

```
example% openwin -dev /dev/fb
```

4. Reset your path so that the path for the SunView versions of the DeskSet tools appears before the path for the XView versions. For example, if you are using the C shell, use the following command:

```
example% set path=(/usr/bin $path)
```

If you are using the Bourne shell, use the following command:

```
example$ PATH=/usr/bin:$PATH; export PATH
```

5. **Start SunView using the `sunview` command and specify the second frame buffer with the `-d` command-line option. For example:**

```
example% sunview -d /dev/cgsix1 &
```

6. **Run the `adjacentscreens` command to provide alternating access to the two displays. For example, if the `cgsix1` screen is to the left of the `fb` screen, enter this command:**

```
example% adjacentscreens /dev/fb -l /dev/cgsix1
```

7. **Check to make sure you can enter characters properly on the screen running SunView. If not, select the "Reset Keyboard" item from the root menu.**

Running Multiple Monitors with Sunview

The `sunview` program runs on either a monochrome or color screen. Each monitor on a machine with multiple monitors may have a separate SunView running. The keyboard and mouse input devices can be shared between the screens. Using `adjacentscreens` command, you can set up the pointer to slide from one screen to another when you move it off the edge of a screen.

It is assumed that two monitors are attached to the system. To set up SunView on two monitors:

1. **Invoke `sunview` on the first display as you normally would. This starts an instance of SunView on the default frame buffer (`/dev/fb`).**

2. **To start SunView on the second device, open a shell tool and enter this command:**

```
example% sunview -d /dev/cgsix1 &
```

This starts SunView on another device. In this example, the device name of `/dev/cgsix1` was used. The name of your frame buffer may be different.

3. **In that same shell tool, enter this command:**

```
example% adjacentscreens /dev/fb -r /dev/cgsix1
```

This sets up the cursor to switch between screens as it crosses the right or left edge of the respective screens.

For more information, consult the `sunview` man page (`man sunview`).